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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,103	12/10/2003	Mario Swinnen	ASHL.002A	7963

20995 7590 05/26/2005

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EXAMINER

HOPKINS, ROBERT A

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 05/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/734,103

Applicant(s)

SWINNEN ET AL.

Examiner

Robert A. Hopkins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

Claims 12 and 26 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 12 and 26 recite a property of the ultrasound, but do not further limit the apparatus limitations of claims 4 and 18.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haggett et al(6770248) taken together with Schlieff(5380411).

Haggett et al teaches a method of treating a cutting fluid(lubricating fluid; abstract) comprising exposing cutting fluid to ultrasound of a frequency of 100kHz or higher. Haggett et al is silent as to simultaneously exposing the cutting fluid to gas microbubbles and ultrasound of a frequency of 100kHz or higher. Schlieff teaches a process of treating a liquid containing microorganisms, wherein the liquid is exposed to ultrasound in a preparation containing or producing microbubbles. It would have been obvious to someone of ordinary skill in the art at the time of the invention to provide a

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step of simultaneously exposing the cutting fluid to gas microbubbles and ultrasound of a frequency of 100kHz or higher in order to cause an intensification of the shock wave or ultrasound effect(abstract of Schlieff). Schlieff further teaches wherein the gas microbubbles consist essentially of ambient air. Schlieff further teaches wherein the diameter of the microbubbles is less than about 50 micrometers.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haggett et al(6770248) taken together with Vollmer et al reference.

Haggett et al teaches a method of treating a cutting fluid(lubricating fluid; abstract) comprising exposing cutting fluid to ultrasound of a frequency of 100kHz or higher. Haggett et al is silent as to simultaneously exposing the cutting fluid to gas microbubbles and ultrasound of a frequency of 100kHz or higher. Vollmer et al reference teaches a process of treating a liquid containing microorganisms, wherein the liquid is exposed to ultrasound with gas microbubbles(page 3928, column 2, under "Ultrasound treatment"). . It would have been obvious to someone of ordinary skill in the art at the time of the invention to provide a step of simultaneously exposing the cutting fluid to gas microbubbles and ultrasound of a frequency of 100kHz or higher in order to provide a greater surface area for holding the cutting fluid and microorganisms(page 3930 first full paragraph, lines 8-13), and hence provide for greater treating effect of the cutting fluid.

Claims 4-12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haggett et al(6770248) taken together with Schlieff(5380411).

Haggett et al teaches an apparatus for reducing the presence of live microorganisms in a cutting fluid comprising a compartment(3) for holding a reservoir of cutting fluid, an ultrasound emitter(1) configured to emit ultrasound signals at a frequency higher than 100kHz into the compartment. Haggett et al is silent as to a gas microbubble emitter configured to emit gas microbubbles having an average diameter of less than 1 mm into the ultrasound field in the compartment containing the cutting fluid. Schlieff teaches reducing the presence of live microorganisms in a fluid, wherein the liquid is exposed to ultrasound in a preparation containing or producing microbubbles. It would have been obvious to someone of ordinary skill in the art at the time of the invention to provide a gas microbubble emitter configured to emit gas microbubbles having an average diameter of less than 1 mm into the ultrasound field in the compartment containing the cutting fluid in order to cause an intensification of the shock wave or ultrasound effect(abstract of Schlieff). Schlieff further teaches wherein the gas microbubbles are not ozone microbubbles. Schlieff further teaches wherein the gas microbubbles are air microbubbles. Schlieff further teaches wherein the average diameter of the gas microbubbles is less than 50 microns, and less than 30 microns.

Claims 4-12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haggett et al(6770248) taken together with Vollmer et al reference.

Haggett et al teaches an apparatus for reducing the presence of live microorganisms in a cutting fluid comprising a compartment(3) for holding a reservoir of cutting fluid, an ultrasound emitter(1) configured to emit ultrasound signals at a frequency higher than 100kHz into the compartment. Haggett et al is silent as to a gas

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microbubble emitter configured to emit gas microbubbles having an average diameter of less than 1 mm into the ultrasound field in the compartment containing the cutting fluid.

Vollmer et al reference teaches a process of treating a liquid containing microorganisms, wherein the liquid is exposed to ultrasound with gas microbubbles(page 3928, column 2, under "Ultrasound treatment"). . It would have been obvious to someone of ordinary skill in the art at the time of the invention to provide a gas microbubble emitter configured to emit gas microbubbles having an average diameter of less than 1 mm into the ultrasound field in the compartment containing the cutting fluid in order to provide a greater surface area for holding the cutting fluid and microorganisms(page 3930 first full paragraph, lines 8-13), and hence provide for greater treating effect of the cutting fluid. Vollmer et al reference further teaches wherein the gas microbubbles are not ozone microbubbles. Vollmer et al reference further teaches wherein the gas microbubbles are air microbubbles. Vollmer et al reference further teaches wherein the average diameter of the gas microbubbles is less than 50 microns, and less than 30 microns.

Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haggett et al(6770248) taken together with Schlieff(5380411).

Haggett et al teaches a method of treating cutting fluid comprising collecting cutting fluid from a fluid routing circuit(figure 3), routing the cutting fluid into a compartment(40), and exposing cutting fluid to ultrasound of a frequency of 100kHz or higher. Haggett et al is silent as to simultaneously exposing the cutting fluid to gas microbubbles and ultrasound of a frequency of 100kHz or higher. Schlieff teaches a

process of treating a liquid containing microorganisms, wherein the liquid is exposed to ultrasound in a preparation containing or producing microbubbles. It would have been obvious to someone of ordinary skill in the art at the time of the invention to provide a step of simultaneously exposing the cutting fluid to gas microbubbles and ultrasound of a frequency of 100kHz or higher in order to cause an intensification of the shock wave or ultrasound effect(abstract of Schlieff). Schlieff further teaches wherein the gas microbubbles consist essentially of ambient air. Schlieff further teaches wherein the diameter of the microbubbles is less than about 50 micrometers.

Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haggett et al(6770248) taken together with Vollmer et al reference.

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3930 first full paragraph, lines 8-13), and hence provide for greater treating effect of the cutting fluid.

Claims 18-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haggett et al(6770248) taken together with Schlieff(5380411).

Haggett et al teaches a machining system comprising a cutting device(not shown), a cutting fluid circuit connected to the cutting device, a compartment(40) for holding a reservoir of cutting fluid, an ultrasound emitter(1) configured to emit ultrasound signals at a frequency higher than 100kHz into the compartment. Haggett et al is silent as to a gas microbubble emitter configured to emit gas microbubbles having an average diameter of less than 1 mm into the ultrasound field in the compartment containing the cutting fluid. Schlieff teaches reducing the presence of live microorganisms in a fluid, wherein the liquid is exposed to ultrasound in a preparation containing or producing microbubbles. It would have been obvious to someone of ordinary skill in the art at the time of the invention to provide a gas microbubble emitter configured to emit gas microbubbles having an average diameter of less than 1 mm into the ultrasound field in the compartment containing the cutting fluid in order to cause an intensification of the shock wave or ultrasound effect(abstract of Schlieff). Schlieff further teaches wherein the gas microbubbles are not ozone microbubbles. Schlieff further teaches wherein the gas microbubbles are air microbubbles. Schlieff further teaches wherein the average diameter of the gas microbubbles is less than 50 microns, and less than 30 microns.

Claims 18-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haggett et al(6770248) taken together with Vollmer et al reference.

Haggett et al teaches a machining system comprising a cutting device(not shown), a cutting fluid circuit connected to the cutting device, a compartment(40) for holding a reservoir of cutting fluid, an ultrasound emitter(1) configured to emit ultrasound signals at a frequency higher than 100kHz into the compartment. Haggett et al is silent as to a gas microbubble emitter configured to emit gas microbubbles having an average diameter of less than 1 mm into the ultrasound field in the compartment containing the cutting fluid. Vollmer et al reference teaches a process of treating a liquid containing microorganisms, wherein the liquid is exposed to ultrasound with gas microbubbles(page 3928, column 2, under "Ultrasound treatment"). . It would have been obvious to someone of ordinary skill in the art at the time of the invention to provide a gas microbubble emitter configured to emit gas microbubbles having an average diameter of less than 1 mm into the ultrasound field in the compartment containing the cutting fluid in order to provide a greater surface area for holding the cutting fluid and microorganisms(page 3930 first full paragraph, lines 8-13), and hence provide for greater treating effect of the cutting fluid. Vollmer et al reference further teaches wherein the gas microbubbles are not ozone microbubbles. Vollmer et al reference further teaches wherein the gas microbubbles are air microbubbles. Vollmer et al reference further teaches wherein the average diameter of the gas microbubbles is less than 50 microns, and less than 30 microns.

Claims 13 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haggett et al(6770248) taken together with Schlieff(5380411) in view of Horton , III et al(6447720).

Haggett et al taken together with Schlieff teach all of the limitations of claims 13 and 27 but is silent as to an electromagnetic radiation emitter configured to emit electromagnetic radiation in the visible range into the ultrasound field. Horton , III et al teaches an apparatus for treating a fluid with microorganisms, wherein electromagnetic radiation emitter configured to emit electromagnetic radiation in the visible range into the fluid. It would have been obvious to someone of ordinary skill in the art at the time of the invention to provide an electromagnetic radiation emitter configured to emit electromagnetic radiation in the visible range into the ultrasound field of Haggett et al in order to provide an additional mechanism for destroying microorganisms within the cutting fluid of Haggett et al.

Claims 13 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haggett et al(6770248) taken together with Vollmer et al reference in view of Horton , III et al(6447720).

Haggett et al taken together with Vollmer et al reference teach all of the limitations of claims 13 and 27 but is silent as to an electromagnetic radiation emitter configured to emit electromagnetic radiation in the visible range into the ultrasound field. Horton , III et al teaches an apparatus for treating a fluid with microorganisms, wherein electromagnetic radiation emitter configured to emit electromagnetic radiation in the visible range into the fluid. It would have been obvious to someone of ordinary skill in

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the art at the time of the invention to provide an electromagnetic radiation emitter configured to emit electromagnetic radiation in the visible range into the ultrasound field of Haggett et al in order to provide an additional mechanism for destroying microorganisms within the cutting fluid of Haggett et al.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wessels et al(3634243) discloses treating lubricating fluids containing microorganisms in connection with a machining or cutting device.

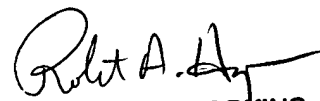
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Hopkins whose telephone number is 571-272-1159. The examiner can normally be reached on Monday-Friday, 7am-4pm, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rah
May 24, 2005


ROBERT A. HOPKINS
PRIMARY EXAMINER

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